

MISSOURI CONSERVATIONIST

VOLUME 83, ISSUE 4, APRIL 2022
SERVING NATURE & YOU



Discover NATURE

BROWN-HEADED NUTHATCH NOTECARDS

Until recently, the brown-headed nuthatch was extirpated from Missouri. Years of cooperative planning with conservation partners have brought a small population of nuthatches back to southern Missouri's Ozark woodlands. Cards are 4½ by 6 inches. Set includes 12 cards and envelopes. Blank on the inside.

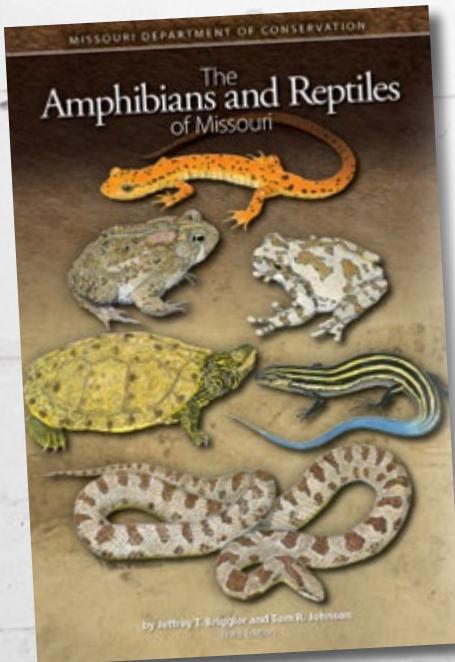
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BARRED OWL NOTECARDS

A barred owl perches on a paint-chipped fence post. The barred owl is the only large, brown-streaked, dark-eyed owl in Missouri, and its distinctive hooting call is easily identifiable. Barred owls typically reside along forested streams, lakes, rivers, swamps, and in deep woods with big timber. Cards are 4½ by 6 inches. Set includes 12 cards and envelopes. Blank on the inside.

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THIRD EDITION

Whether you're a student of herpetology or just someone interested in identifying those cold-blooded critters crawling and hopping through your backyard, *The Amphibians and Reptiles of Missouri* is the perfect guide. Updated for the first time in more than 20 years, this expanded, 514-page guide to Missouri's amphibians and reptiles provides users with descriptions, distribution, habitats, habits, breeding, and other information on nearly 120 species of native salamanders, toads, frogs, turtles, lizards, and snakes. Illustrated with four-color photos, pen and ink drawings, distribution maps, and more, this soft-cover guide gives you all you need to take the mystery out of Missouri's herps.

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JEFFREY T. BRIGGEE

Northern crawfish frog

MISSOURI
CONSERVATIONIST



ON THE COVER

Phlox blooms along the Ozark Trail in Rocky Creek Conservation Area

© DAVID STONNER

16–35mm lens, f/2.8
1/60 sec, ISO 200

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Inbox



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

MISSOURI
CONSERVATIONIST
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RED CROWN
I am familiar with the western kingbird, but have not seen that red marking on the forehead before [March cover]. Love the *Conservationist*. Great job!

Bob Karel
via email

INVASIVES

I read with interest *Missouri's Least Wanted* [February, Page 8] on garlic mustard. I believe invasive species are as much to blame for the decline in bird numbers as urban sprawl. I don't see any way to get on top of the invasion other than gathering an army of concerned citizens to fight the invasion. I hope to see more articles on invasive species and a call for volunteers to tackle invasives.

Tom Crawford Excelsior Springs

WETLANDS

Thank you for reminding us about the importance of wetlands and their vital contributions to a healthy ecosystem [*Meaningful Connections*, February, Page 10]. I was shocked to read in *Up Front* [Page 3] that our country is losing wetlands at an alarming rate of 13,800 acres annually.

Sadly, that reminded me of the warning so eloquently given over 50 years ago by conservationist Leonard Hall in his book *Stars Upstream*: "The need to preserve areas that are wild and natural increases in America with each day that goes by; for it has been truly said that wilderness is a resource which can shrink but never grow. The danger to wild areas is the 'juggernaut called progress, which takes no account of natural values'."

Dudley McCarter St. Louis

Meaningful Connections by Frank Nelson was perfectly timed for me. Having just finished the book *Cadillac Desert* by Marc Reisner, I am acutely aware of the wetlands issue in this country. The statement by Nelson that "wetlands have a long history in the U.S. as being undervalued and disregarded" is a huge understatement. There are now about 90,000 dams in this country, virtually all built in the last 100 years and all of which destroy riverbeds, riparian landscapes, and wetlands in the name of flood control, hydroelectric power, irrigation, and water storage. We are now irrigating millions of acres of arid land west of the 100th meridian that is marginal for raising cattle and mostly unable to support farming. And, more to the point of Nelson's article, there are alternative ways to control river flooding than building a dam, like wetlands.

I commend MDC for working with farmers and landowners to better understand the importance of and to maintain the ecology of our waterways, riparian corridors, and wetlands.

Max Arens Kirkwood

FOR THE BIRDS

About 3 years ago, we included native plants to attract birds and other wildlife to our property. We also decided to put up two bluebird houses. Within about 20 minutes, we had a pair moving into one of the boxes. By the next day, the other box was occupied as well. In the last two years, we have watched 16 fledgling birds make their way out into the woods around us. It felt cool to have a small part in the bigger picture of these beautiful birds' lives.

Brian Wiest via email

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Send a note using our online contact form at mdc.mo.gov/commissioners.

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The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.



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in the Missouri Conservationist?**

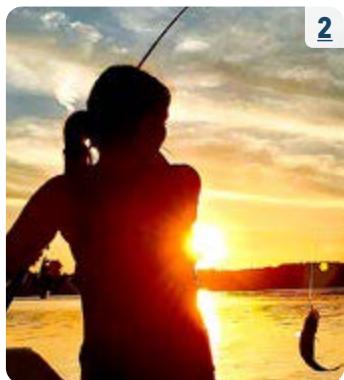
Share your photos on Flickr at flickr.com/groups/mdcreaderphotos-2022 or email Readerphoto@mdc.mo.gov.

**1**

1 | Eastern bluebird by **Pamela Rethy**, via Flickr

2 | First catch of the year by **Casey Boyd**, via email

3 | White-tailed deer fawn by **Paul Rains**, via Flickr

**2****3**

**Want another chance to see
your photos in the magazine?**

→ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.

TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✖ **Let's go fishing tomorrow, my husband suggested a few weeks back.** But the weekend to-do list was long and a day on the water seemed too frivolous a choice in the moment. We'll see, I quipped. Later that same day, a friend and his 10-year-old daughter, Sophie, stopped by for a visit. They were giddy with excitement awaiting MDC's new regulation set to go into effect February 28, expanding biking opportunities on many conservation areas. As hunters, anglers, competitive bike racers, and trail runners, they were already regular users of MDC's conservation areas, but were ecstatic MDC was opening areas to even more opportunities to recreate.

I asked Sophie why she loved being outside so much. Her reasons ranged from adventures with mom and dad to the fun of races, but ultimately, she said what she liked most was just the opportunity to play, especially in the dirt! Ah, I thought, just for the sheer joy and pleasure of play.

In our ever-demanding society that focuses so much on working more, doing more, all with never enough time in mind, the simplicity and pleasure of outdoor play is often forgotten, as are its benefits — such as calming an overactive mind, improving focus and creativity, and producing greater empathy and connection. (See more on nature's healing power on Page 10). Sophie reminded me of the power of play. And so, the next day? We headed to the Lake of the Ozarks — and nature cast its healing spell once more. Out of the mouths of babes.

Sara Parker Pauley —

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Nature LAB

by Dianne Van Dien

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

FOREST MANAGEMENT

White Oak Decline

✖ **Growing 50 to 80 feet tall, white oaks** (*Quercus alba*) are a keystone species across much of the eastern and central U.S. Take a walk in a Missouri forest and you'll likely see many of these stately trees. But what worries foresters is what you won't see — young trees and saplings.

"The trees are all roughly the same age and many are reaching the end of their life span," says MDC Forestry Field Program Supervisor George Kipp. "As with any population, humans included, if there aren't enough children to replace the adults, the population will decline."

Why aren't enough young white oaks surviving?

"Many factors are influencing each other," Kipp explains. "These include climate change, insect pests, diseases, and historical land practices."

A decline in white oaks not only will impact wildlife, such as deer, turkeys, songbirds, and butterflies, but also many industries, including furniture makers and alcohol producers (white oak is the preferred wood for wine and whiskey barrels).

With white oak declining throughout its range, state and federal agencies, universities, nonprofits,



White oaks are important both ecologically and economically. Although today most forests are well stocked with mature trees, if current conditions persist, white oak populations could drop sharply in just a decade or two.

and businesses came together in 2017 to form the White Oak Initiative. MDC is part of this partnership working to reverse the decline through outreach, research, and management.

Lack of regeneration puts white oaks in jeopardy

On state lands, MDC uses prescribed burns to stimulate new sprouts from stumps and selective harvesting to open the canopy for this sun-loving species. It also offers technical and financial assistance to landowners to increase white oaks on their property.

"With nearly 85 percent of forests in Missouri on private land, MDC can't do this alone," says Kipp. "Our hope is that by providing outreach now, studying this now, and implementing practices now, we can ensure we have white oaks for future generations."

White Oak Decline at a Glance

Not enough young white oak trees are surviving to sustain the population as older trees die. MDC staff are working to reverse this trend through management practices that provide better conditions for young oaks to thrive.



With the right conditions, a white oak seedling can grow to full height in 40 years, but under a dense forest canopy, (if it survives) the same tree may take more than 80 years to reach that height.

How You Can Help Reverse the Decline:

- Create disturbance in forested acres through prescribed burns
- Open the canopy through selective harvesting
- Plant white oaks in sunny parts of your yard

.....
Contact your local MDC forester at mdc.mo.gov/contact-engage.

In Brief

News and updates from MDC



BE BEAR AWARE THIS SPRING

AS BEARS LEAVE THEIR WINTER DENS IN SEARCH OF FOOD, MDC OFFERS IMPORTANT SAFETY TIPS

► Missouri is home to an estimated 800 black bears, mostly in the southern part of the state. As spring arrives and these magnificent mammals leave their winter dens, MDC reminds Missourians to "Be Bear Aware."

MDC Furbearer Biologist Laura Conlee said it is imperative that residents remove bear attractants from their property, such as bird feeders, trash, barbecue grills, pet food, and food waste.

"As black bears become active in the spring, they are on a mission to find food," said Conlee, who is also MDC's Terrestrial Section chief for its Science Branch. "Keeping areas free of attractants and letting bears find natural foods is in everyone's best interest. If you see a bear, let the animal be and enjoy the sighting, but be sure to not offer it any food."

Conlee noted that intentionally feeding bears can be dangerous as it makes the bears comfortable around people. It can also lead bears to cause significant damage to property while searching for a meal.

"When bears lose their fear of humans, they could approach people in search of food or may defend the food sources or territory they associate with people, which can make them dangerous," Conlee said. "When this happens, the bear cannot be relocated and has to be destroyed. A fed bear is a dead bear."

continued on Page 6 »

In Brief

BE BEAR AWARE

(continued from Page 5)

Food is usually a bear's main motivator, but that also means it can be a main source of conflict. We offer the following tips to avoid attracting black bears to possible food sources:

- Store garbage, recyclables, and compost inside a secure building or in a bear-proof container until trash pick-up day.
- Keep grills and smokers clean and store them inside.
- Don't leave pet food outside. Feed pets a portion at each meal and remove the empty containers.
- Refrain from using birdfeeders in bear country from April through November. If in use, hang them at least 10 feet high and 4 feet away from any structure. Keep in mind that even if a bear cannot get to the birdseed, the scent could still attract it to the area.
- Use electric fencing to keep bears away from beehives, chicken coops, vegetable gardens, orchards, and other potential food sources.
- Keep campsites clean and store all food, toiletries and trash in a secure vehicle or strung high between two trees. Do not keep food or toiletries in a tent, and do not burn or bury garbage or food waste.

While black bears are generally a shy, non-aggressive species and bear attacks are rare, follow these tips when outdoors in bear country:

- Make noise, such as clapping, singing, or talking loudly, while hiking to prevent surprising a bear.
- Travel in a group if possible.
- Keep dogs leashed.
- Be aware of the surroundings. If there is evidence of a bear, such as tracks or scat, avoid the area.
- Leave bears alone! Do not approach them, and make sure they have an escape route.

Report bear sightings and post photos online at mdc.mo.gov/reportbears.



Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov or call 573-522-4115, ext. 3848.

Q: We found these eggs in a pool that's formed from a natural spring. Can you help identify them?

→ These are spotted salamander (*Ambystoma maculatum*) eggs. During the first warm rains in late February to mid-March, they begin to congregate in shallow, fishless, woodland ponds to court and lay eggs. Female spotted salamanders generally lay two to four egg masses, producing a total of 200 to 400 eggs. The gilled larvae hatch in four to six weeks. Most will leave the pond over the summer, but some may overwinter there. And many will return to the same pond to breed year after year.

Q: I regularly read, and have followed, that tropical milkweed (*Asclepias curassavica*) should be avoided. It's popular at many nurseries. Why should we not plant it?

→ Conservationists recommend avoiding tropical milkweed because, like many annuals, it doesn't die back until a killing frost. In recent years in Missouri, that hasn't happened until November.

Native milkweeds, on the other hand, deteriorate when the monarchs are migrating in late September and October. The concern is that tropical milkweed, still actively growing,



Spotted salamander egg masses

will bring migrating monarchs out of diapause — a period of suspended development — and cause them to breed. This, in turn, could stop their migration and the offspring of these monarchs will not survive the fall weather to migrate successfully to Mexico.

Conservationists do not see this same concern in Missouri's native milkweed species. With 18 species of milkweed native to Missouri, they have adapted to most habitats in the state — from wetlands to glades — so finding one to suit your local conditions is feasible. While some milkweeds look nondescript, all provide valuable nectar to many species and serve as hosts to monarch larvae. And many are finally being recognized for their ornamental qualities in landscaping. Learn more about cultivating native milkweeds online at short.mdc.mo.gov/4oq.



Q: What is the rationale for halting spring turkey hunting at 1 p.m. daily?

► The tradition of half-day spring turkey hunting in Missouri started in 1960, the year of the state's first modern turkey season. Conservationists of that era were engaged in restoration efforts because turkey populations were relatively low, and biologists did not have a good understanding of how male harvest affected population dynamics. Therefore, many states, including Missouri, implemented conservative hunting regulations when establishing spring turkey

seasons to ensure harvest would not hamper restoration efforts.

At the time, the main justification for half-day hunting included limiting the harvest of gobblers and reducing the disturbance of nesting hens. Additionally, it was believed hens were more likely to take recesses from nesting during the warm part of the day, making hens susceptible to accidental harvest during the afternoon, explained MDC Scientist Reina Tyl.

For more information on wild turkey hunting, visit short.mdc.mo.gov/4oc.



Tex Rabenau

MARIES COUNTY
CONSERVATION AGENT

offers this month's

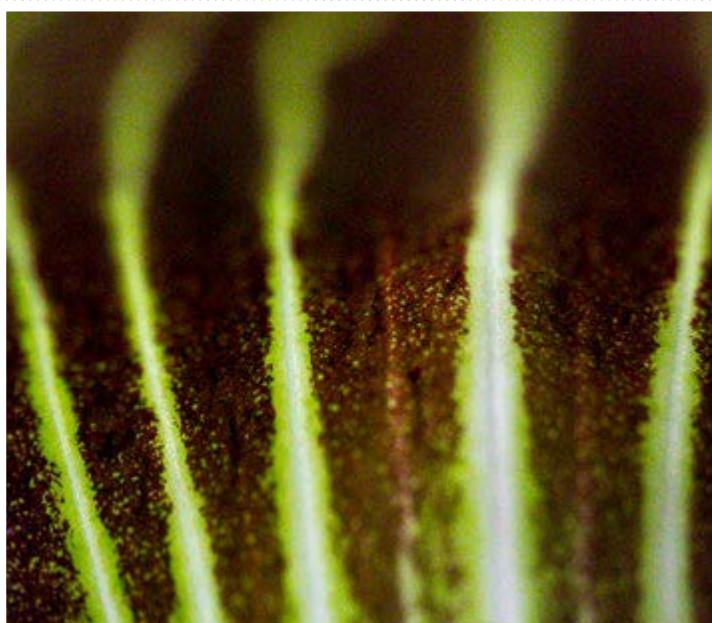
AGENT ADVICE

If spring has you reaching for the fishing pole, think about angling for a fish in the temperate bass family. This group — which includes white, hybrid, striped, and yellow bass — are abundant and fun to catch this time of year. When water temperatures reach 55 degrees, they start moving into tributaries to spawn. This activity makes them easier to catch, using a 2-inch white grub, jointed minnow, or something that simulates their preferred food, gizzard shad. Limits are generous, with 15 in the aggregate but only four over 18 inches. To learn more, including information regarding permits and any special regulations, check out *A Summary of Missouri Fishing Regulations*, available at mdc.mo.gov/fishing/regulations.

What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.



WE ARE CONSERVATION

Spotlight on
people and partners
by Angie Daly Morfeld



The Black People Who Hike leadership team in fall 2021, pictured left to right: Yamiel Bell, Antonia Burgess, Karine Evans, Lashaye Giles, Charles Davis III, Aarin Weathers; front: Debbie Njai.

Debbie Njai, Founder of Black People Who Hike

Debbie Njai was introduced to hiking in August 2019, and it proved to be just what she needed. Njai started hiking every Sunday, which led to her starting Black People Who Hike as an Instagram page and organized group events, drawing up to 50 people.

"We hike, too"

Black People Who Hike is more than hiking — it's a movement. "We are cultivating the next generation of conservationists," said Njai. "Hiking is just the gateway." Wilderness first aid, introduction to backpacking, and kayaking safety are just a few of the trainings Njai and her leadership team completed in 2021. Njai sees education as empowerment, which will lead to more people comfortable in the outdoors.

In her own words

"We want to get more people of color on the trails and taking advantage of this free resource until it becomes second nature. Then it becomes a catalyst for a healthier community — both physically and mentally."

For more information, visit Blackpeoplewhohike.com.

by Jaelin Collier

What's your conservation superpower?

TEACHERS: MDC TO LAUNCH NEW DISCOVER NATURE SCHOOLS CURRICULUM

To align with new Missouri Learning Standards from the Missouri Department of Elementary and Secondary Education, MDC's Discover Nature Schools (DNS) new kindergarten, first, and second grade units will meet every standard for all sciences, including physical and life sciences, earth and space, and engineering and technology.

"We have aligned all DNS lessons to Missouri science standards and have updated them to introduce students to Missouri-specific topics such as black bears, turkeys, pollinators, birds, and so much more," said DNS Curriculum Coordinator Mary Beth Factor.

Changes will include:

- Grade-specific units for kindergarten, first, and second grade, rather than one bundled K-2 unit.
- Alignment with all Missouri Learning Science Standards rather than only life science standards.
- Teacher kits available to all classroom teachers trained by a local conservation educator.
- Full-color teacher guides and student guides for each unit.

"We are also updating the MDC Teacher Portal to include classroom pages with digital resources aligned to specific lessons in the units," said Factor. "These support materials will include videos, audio clips, printable classroom handouts, and so much more. We are working hard to ensure our curriculum is relevant for today's classroom."

The new units will be available in fall 2022. Teachers interested in ordering the new curriculum, or other DNS units — at no cost for Missouri classroom teachers and homeschool parents — can visit MDC's online *Teacher Portal* at education.mdc.mo.gov.

Classroom teachers can also receive a DNS Teacher Kit and Field Experience Grant after participating in required training. To find a local MDC conservation educator and schedule a training, visit us online at short.mdc.mo.gov/4ok.

DNS began in 2008 to promote and teach scientific learning and skills to Missouri students through lessons that are engaging, hands on, and Missouri-specific. The program has since grown from a middle-school aquatics-focused curriculum to offering curriculum for pre-K through high school, with students exploring scientific concepts in the outdoors.



GET NEW MDC BOOKLETS

Missouri hunters, trappers, anglers, and others can get free copies of MDC's updated booklets on spring turkey hunting, hunting and trapping, fishing, and the *Wildlife Code of Missouri* at MDC regional offices, MDC nature centers, and other places where permits are sold. The handy booklets have information on related permits, seasons, species, regulations, limits, conservation areas, sunrise and sunset tables, and more.

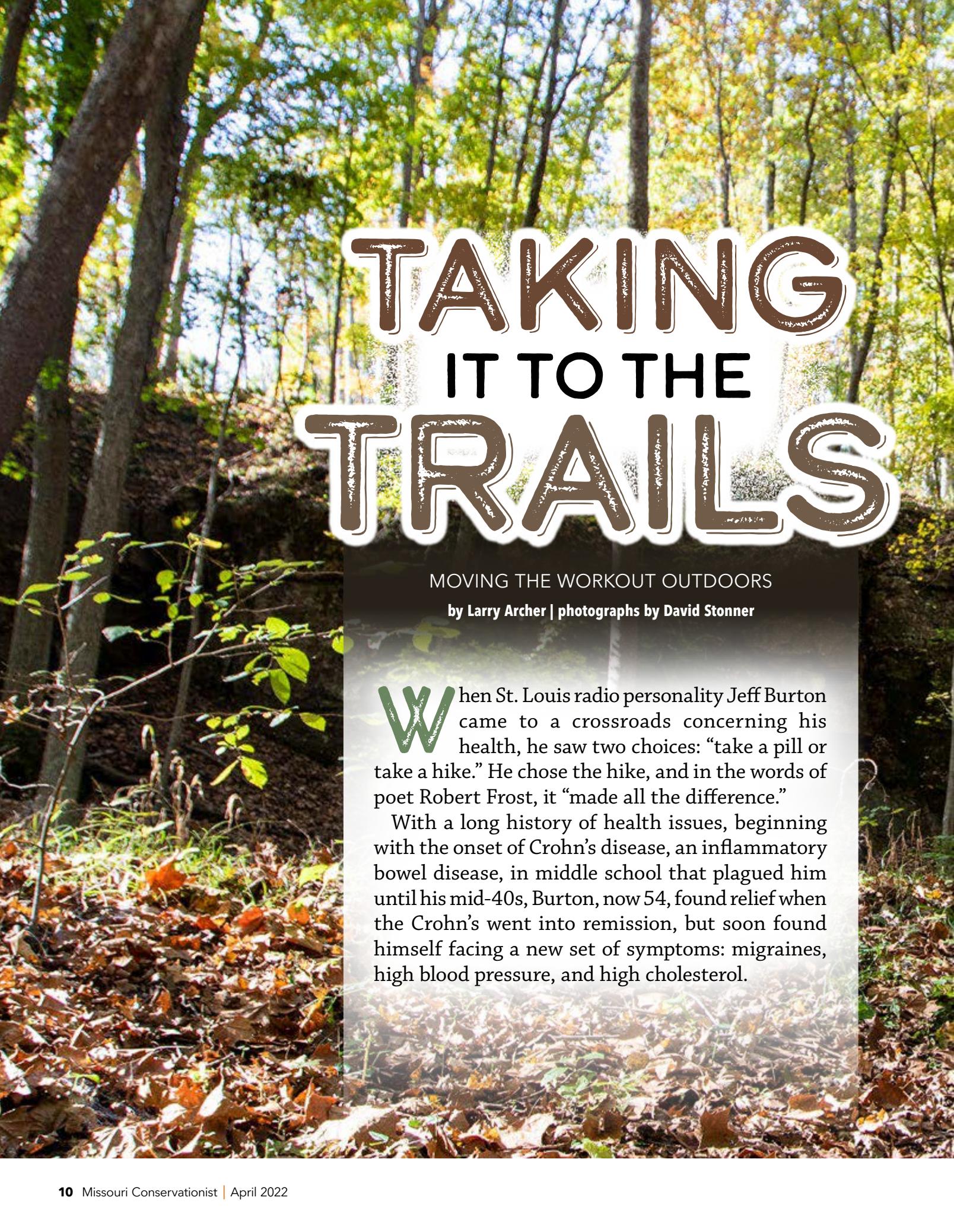
The booklets are available online at mdc.mo.gov using the search tool at the top of the homepage, or using these specific links:

- 2022 Spring Turkey Hunting Regulations and Information at short.mdc.mo.gov/44t
- Summary of Missouri Hunting and Trapping Regulations at short.mdc.mo.gov/44v
- Summary of Missouri Fishing Regulations at short.mdc.mo.gov/Z9n
- Wildlife Code of Missouri at short.mdc.mo.gov/Z8T

WHAT IS IT? JACK-IN-THE-PULPIT

Jack-in-the-pulpit's canopylike leaf is green with white and brown lengthwise markings. The leaflike structure, known as a spathe, shelters the vertical, clublike flower, known as the Jack or spadix, that blooms from April-June. The base of the spathe creates a cylinder around the spadix, forming the "pulpit."





TAKING IT TO THE TRAILS

MOVING THE WORKOUT OUTDOORS

by Larry Archer | photographs by David Stoner

When St. Louis radio personality Jeff Burton came to a crossroads concerning his health, he saw two choices: "take a pill or take a hike." He chose the hike, and in the words of poet Robert Frost, it "made all the difference."

With a long history of health issues, beginning with the onset of Crohn's disease, an inflammatory bowel disease, in middle school that plagued him until his mid-40s, Burton, now 54, found relief when the Crohn's went into remission, but soon found himself facing a new set of symptoms: migraines, high blood pressure, and high cholesterol.



Jeff Burton hikes the
trails at Rockwoods
Reservation in Wildwood.



"THE NATURAL THING"

With prescribed medicine and exercise, Burton's recovery got off to a rocky start, he said. "I got an elliptical, I got on the pills," he said. "I barely touched the elliptical, but I took the pills, and my numbers stayed the same."

Dissatisfied with the poor initial response, he decided to modify his approach.

"I decided to not take the medicine and do the natural thing and get out and exercise," he said. "And I'm not going to exercise on a treadmill or an elliptical in the beautiful gym right up the street. I just went out to the woods and started walking. It was beautiful. The physical was amazing, but the mental rewards are ridiculous."

ON THE TRAIL WITH ELOISE

Accompanied by his rottweiler-lab mix, Eloise, Burton began making regular visits to MDC's Rockwoods Reservation in Wildwood and nearby conservation areas and state parks. The results were evident with his next visit to the doctor, where tests showed a decrease in both his blood pressure and cholesterol.

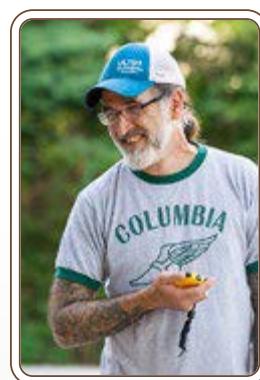
Unfortunately for Burton, while he found new life in the woods, he wasn't out of the woods when it came to his health. In 2021, he was diagnosed with prostate cancer. While a setback in his overall health and fitness journey, Burton still finds solace in nature to help him through the difficulties of chemotherapy.

"I might not be able to go as far, but once I'm out there, I can just sit down," he said. "And if I'm going to be resting and relaxing, why not do it there. I can go lay in my bed and watch reruns of M*A*S*H, which I love, or I can sit on a rock or a freaking log in the woods. Where are you going to recharge your batteries better?"



"I just went out to the woods and started walking. It was beautiful. The physical was amazing, but the mental rewards are ridiculous."

— Jeff Burton



STAYING CENTERED

On any given spring or fall Thursday, it's a good bet one would likely find Shawn Goetz marking the trails of Three Creeks Conservation Area (CA) near Columbia for that evening's trail run. Goetz, 49, coordinates a regular trail race series for local runners, but trail running was also a lifesaver for him.

"I used to live a different life, and I got sober," said Goetz, a heating, air conditioning, and ventilation salesman. "I started becoming active, but I didn't have a community and I kind of longed for that. I started off being a road runner and then I found trails and a very small group of trail runners here in town."

Trail running provides him with the opportunity to focus on all aspects of his health, including sobriety, he said.



"What am I doing if I'm out here hiking or running?" he said. "I'm clearing my mind. I'm focusing on my breathing. I realized that I'm meditating, I'm just moving while doing it.

"It really helps me with my spirituality, it helps me stay centered."

"IT'S LIKE MEDICINE"

Diagnosed with thyroid cancer in 2014, Goetz was forced to cut back on his own running but has found satisfaction in helping others discover the joys of trail running. Before COVID, Goetz's weekly races drew as many as 50 runners, including many first timers, and continues to draw 15–20.

"I think the best thing is getting people out here who would never have done something like this on their own," he said.

And while he's stepped away from the trail running at the level he once competed, he still looks to the outdoors to help with his continued recovery.

"It's like medicine, just coming out here," he said. "It really is."



YOGA ON THE MOVE

Fitness coach Michelle Montague, 54, of Hermann, has coached clients in everything from their first 5K race to triathlon, but many mornings, you're just as likely to see her leading yoga as you are to see her running hills.

As part of her coaching routine, Montague leads outdoor yoga everywhere from local wineries to the bluffs overlooking the Missouri River.

"Right now, I do yoga at Hermann Hill Winery on Saturday mornings, and I also have a class on Friday mornings that we're calling 'yoga on the move,'" she said. "Every week I go to a different location around town, so we'll do it at the upper park, we'll do it at the riverfront, we do it up on our property at the gym, we'll do it out at Hermann Hill."

AN OPEN-AIR GYM

Montague began her coaching career in the more traditional indoor settings, but it wasn't long before she discovered the outdoor option, in part, from her clients.

"What I realized when I was running the business was that everyone around here loves to really be outside," she said. "So, when the weather got nice, I would lose business unless I was pragmatic and came up with the ideas."

Those ideas included training clients in endurance sports, including distance running and triathlon, swimming, paddle boarding, and yoga. Additionally, Montague has found new personal challenges on the water, participating in the MR 340 cross-state race on the Missouri River.

"So, over the past two years I've fallen in love with the river, once I got brave enough to go out there," she said. "I just feel like between the Katy Trail and the river, the outdoors is just my open-air gym."





FROM WRESTLING TO WHITEWATER

The outdoors wasn't where Doug Long went to get fit; it was where he went to use the fitness he'd developed over a lifetime of competitive sports, including as a wrestler and wrestling coach.

"I've always been an athlete," said Long, 68, of Chillicothe. "I've

always lifted weights. Even when I was coaching wrestling, I was wrestling in some open meets, and then later on, I got into paddling as a whitewater kayaker, and then that led to mountain biking."

BLAZING TRAILS

Although his mountain biking has taken him to competitions around the country, his "home trail" is a short 13 miles northwest of Chillicothe in the 5,863-acre Poosey CA. Long knows these trails well because he helped build them. Since 2000, the Green Hills Trail Association, which he helped found, has constructed and continues to maintain 10 miles of mountain biking trails at Poosey CA.



Like Goetz, Long not only enjoys the time he spends on the trails he helped create, he takes satisfaction in creating something that draws others to the outdoors.

"We have people travel from all over the place," he said. "It's pretty cool because I'll be riding, I'll be out there doing work, and all of a sudden, somebody will come along. I've always stopped and asked them where they're from because it's interesting."





Flowering dogwood

Prescribing Nature

With children facing increasing rates of everything from obesity to depression, many pediatricians are writing prescriptions for an increasingly popular miracle drug: nature.

A growing number of pediatricians, working through the national program Park Rx America (parkrxamerica.org), are prescribing outdoor activities to their patients, said Dr. Maya Moody, president-elect of the Missouri Chapter of the American Academy of Pediatrics.

"There's a fair amount of research now coming out — solid, medical research — saying that nature really has a great effect on the body as far as lowering blood pressure and reducing stress and anxiety," Dr. Moody said.

Park Rx America allows physicians to prescribe a determined amount of time or visits to a local park or conservation area. The program's online park finder helps patients identify local outdoor opportunities and allows physicians to track patients' outdoor visits and follow up via email.

"This is something that I've recommended for kids for years, but now it gives me a formal platform and an ability for me to check in with the kids and have the kids check in with me," she said. "The Park Rx America system has it set up, if the parent is okay with it, I can either email or text them and then they'll get text reminders."

While many children get exercise through organized sports or indoor activities, getting outside in unstructured play has additional benefits, Dr. Moody said.

"What we know from medical research is that kids having unstructured play outside has cognitive benefits," she said. "It helps their minds, their thinking, and their creative problem solving. It helps their peer interactions because it's not a structured setting with an adult telling them what to do."

Prescribing outdoor play for children also has benefits for the entire family, said Dr. Julie Bernard, a Cape Girardeau pediatrician.

"Really we're encouraging families now to get outside and to be really active," Dr. Bernard said. "I've seen some great results from families that are doing walks on the trail together or bike rides on the trail or spend their weekends at the park with the kids playing. And so, we've seen some good effects from really encouraging kids to get outside."



WAITING IN THE WOODS

While everyone's health and fitness journey is different and should be tailored to his or her own needs and circumstances, Burton believes exposure to nature and the outdoors offers the broadest mental and physical benefits to the most people.

"I challenge anyone to have my situation to go out in the woods and not be better mentally, which leads to physically," he said. "Your positive attitude is sitting out there waiting for you. It's in the woods." ▲



Columbine

Larry Archer is the Conservationist associate editor. A moderate fitness buff, he has hiked Rockwoods Reservation and Three Creeks CA and mountain biked at Poosey CA. He has yet to do yoga outdoors but is looking forward to trying it.



After the tornado that hit Joplin in 2011, trees were planted in the area. This group gives some attention to a newly planted tree.

PHOTOGRAPH BY DAVID STONNER

Living Infrastructure



TREE CITY USA PROMOTES BENEFITS OF PROPER TREE CARE IN YOUR COMMUNITY

by Jon Skinner and Larry Archer

For many, the image of a shaded, tree-lined street conveys a sense of community. For others, it conjures up childhood memories of summer days spent playing with friends until the streetlights come on.

For Doug Seely, helping cities get this sense of community and more has been his goal for six years. As a community forester with the not-for-profit Beyond Housing, Seely works to bring the benefits of urban forestry to 24 small communities in north St. Louis.

"In order to have successful communities, we have to have a successful infrastructure as well," Seely said. "So, we consider trees to be a vital part of the infrastructure because of all the natural benefits that they provide for us."

As a gauge of the program's success, the number of communities earning the Tree City USA designation has increased from three to 12 since he began in 2016, with an additional designation pending, he said.

A City of Trees?

Every city has trees, so then why are some designated as a Tree City USA?

Tree City USA is a recognition program sponsored by the Arbor Day Foundation, U.S. Forest Service, National Association of State Foresters, and state forestry agencies, including MDC. A total of 105 Missouri communities were among the 3,676 communities recognized nationwide in 2020.

Established in 1976 as part of the United States' Bicentennial celebration, the first communities were recognized in 1977 for their efforts to qualify the previous year. Mexico was the only Missouri community recognized during the inaugural year, and it has maintained the designation in 42 of the 44 years the program has been offered.

To earn Tree City USA recognition a community must maintain a tree board or department; have a community tree ordinance; spend at least \$2 per capita on urban forestry; celebrate Arbor Day, and have an Arbor Day proclamation, said MDC Community Forestry Coordinator Russell Hinnah.

"The Tree City designation means different things to different communities," Hinnah said. "Some use it to get people more active at volunteering. Some communities use it almost as a tourist draw that they're an environmentally friendly community. Others use it just as a sense of pride — that they are a really small community and they've achieved this Tree City USA status just like the city of St. Louis has done."

Among those small communities staking a claim to the Tree City USA title is Brunswick, a town of approximately 800 people in north-central Missouri. Consistently recognized as a Tree City since 1998, Brunswick views the designation as a source of community pride and opportunity for residents to be involved in the community, said Brunswick Tree Board Secretary Mary Riddle.

"People drive through our town, they can see that the community cares, because they can see the improvements in the beauty of the trees and the upkeep the citizens do to take care of our city," Riddle said.

About Tree City USA

Tree City USA developed out of a collaboration of the U.S. Forest Service, National Association of State Foresters, and the Arbor Day Foundation. The Forest Service provides financial assistance and technical advice, state foresters provide local assistance as well as serving as promoters, certifiers, and coordinators in each state, and the foundation provides educational materials and management of the Tree City USA program. The common goal was to promote better management and health of state urban and community forests. The motivation for the founding of the program was a 1972 amendment to the Cooperative Forestry Management Act of 1950. This amendment authorized the creation of a Forest Service urban and community forestry program.

In 1991, the Tree City USA Growth Award was created to recognize communities doing more than the minimum requirements. In 2020, the Growth Award program categories were restructured with explanations of each category. The Growth Award may be earned every year or periodically. In 1991, Brentwood, Ellisville, Fenton, Ferguson, Mexico, and St Louis earned the Growth Award. St. Peters has earned the Growth Award for 21 straight years.

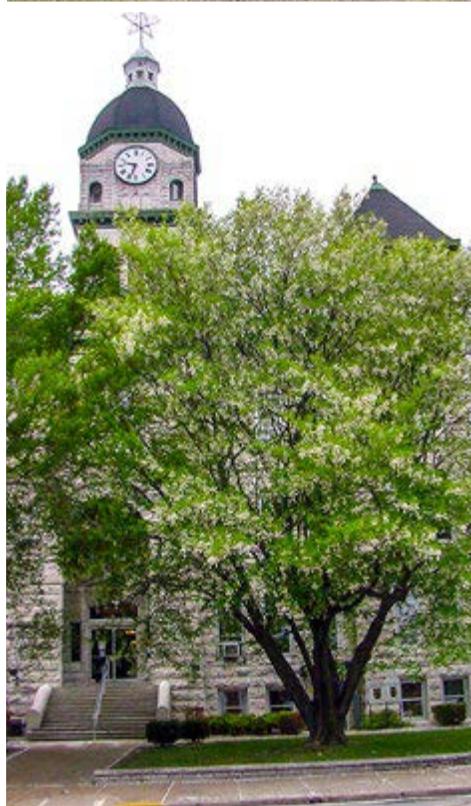
To find out if your community is a Tree City USA, check online at short.mdc.mo.gov/44C. If your community is a Tree City USA, contact your local tree board or department on how you can help. If your community is not a Tree City USA, start a conversation with your city leadership, local civic organizations, and neighbors about earning this recognition. Your community will be improved and benefit from this effort.

Top: People enjoy the shade provided by a tree at the Barton County Free Fair at the county courthouse grounds in Lamar.

Left: A yellowwood tree in bloom sits on the east side of the Jasper County Courthouse in Carthage.

Right top: Trees line a walking trail in Springfield.

Right bottom: Downtown Jefferson City is lined with trees.



More Than Shade

Aside from the shade and improved aesthetics that trees provide, both of which have their own physical and mental health benefits, a full and healthy community forest landscape has much to offer those communities that embrace it. Trees, with their extensive root systems and large canopies, help mitigate the effects of stormwater run-off, thus improving water quality and minimizing the damage done by strong storms. Placed properly, trees can decrease home and commercial energy use, as well as decrease the “heat island” effect in urban areas. A mature and maintained neighborhood tree canopy also increases property values.

Beyond Housing's Seely notes all these benefits and more. Trees can also help cleanse the air of particulate matter—a known cause of respiratory issues, especially in children.

“We have a high rate of asthma, especially within our youth in the Normandy Schools Collaborative, so one of our goals here is to try and have a positive impact on cleaner air so that we can reduce the risk of asthma to our residents,” he said.

Helping the Program Take Root

As mentioned earlier, it takes more than trees for a community to become a Tree City, and for some — especially small communities or those whose budgets are strained — committing to establishing tree ordinances and tree boards, budgeting for tree maintenance, and organizing Arbor Day proclamations and events may seem like going out on a limb. That's why MDC, working with Tree City USA and the Arbor Day Foundation, provides support for interested communities.

"When people think about trees, the first thing they think about is planting trees," said MDC's Hinnah. "They think you just plant a tree and then forget about it, but we work with cities to manage the trees that they have and to get new trees in the ground. If you don't manage those trees as far as care, then those trees can end up causing problems for you down the road."

Creating the ordinance is often the most intimidating requirement when first qualifying for Tree City USA recognition. These guiding documents, which vary in length and detail to fit the community's needs, take time to create, modify, review, and get approved. Tree City USA provides direction for tree boards to meet or exceed the minimum standards. Through state agencies, like MDC, tree boards and communities receive assistance through training and technical advice. Information on Tree City USA and other issues concerning community conservation is available online at mdc.mo.gov/community-conservation.

Assisting communities' forestry needs has been a long-standing priority for MDC, Hinnah said.

"We've had these type of foresters — at least one community forester — in place since the '60s," he said. We were one of the first state agencies to have urban foresters in the United States."



Top: Springfield celebrates Arbor Day.
Left: After the tornado hit Joplin in 2011, tree planting events were held there to commemorate Arbor Day.
Right: Arbor Day 2021 celebrated in Joplin.

Branching Out

Since its introduction in 1976, Tree City USA has branched out in many directions, creating specialized programs to promote tree care for different institutions, including utilities and college and university campuses.

The Tree Line USA recognition program was established in 1994 to recognize utilities that meet guidelines developed specifically for them but follow the general requirements of Tree City USA.

Tree Line USA recognition requires utilities to follow industry standards for quality tree care, including pruning, planting, removals, trenching, and tunneling near trees; provide employees with annual tree care training; participate in tree plantings and public education; promote tree-based energy conservation; and sponsor an annual Arbor Day celebration.

City Utilities of Springfield earned Tree Line USA recognition the first year in 1994 and has since for the last 27 years. It is Missouri's oldest Tree Line USA utility.

Utilities receive recognition for earning Tree Line USA recognition, but more importantly the care of trees in their service area improves, their clients receive tree education, and the long-term cost of tree maintenance around service lines often goes down in comparison to older methods resulting in utility rates being more stable.

"A lot of trees were planted in bad locations," said Scott Gunzenhauser, City Utilities of Springfield vegetation management supervisor. "Everybody wants reliable electricity, right? So, we have to figure out a way to make the two work together."

By making more thoughtful cuts when trimming and using tree growth regulators — chemicals that slow the regrowth of branches — crews can save trees that would otherwise need to be cut down to make sure they do not take out power lines during storms, Gunzenhauser said.

Through the company's public outreach efforts, the utility has promoted the "right tree, right place" concept to ensure that new trees don't interfere with power lines once fully grown, he said.

"That's our big theme," he said, "making sure you look up when you plant a tree, make sure that you call for locates when you go to dig the hole."

The concept also applies to locating trees where they will offer the most shade in the summer while allowing sunlight through in the winter, thus lowering energy use.

Although not directly tree related, the company is also working to replace brush in the transmission line rights-of-way with pollinator-friendly plant species, he said.

More information on Tree Line USA is available online at arborday.org/programs/treelineusa.

In 2008, Tree City USA expanded again, introducing Tree Campus Higher Education, a program dedicated to improving the tree canopy on college campuses, involving students in tree-related service, and educating students and the public through Arbor Day activities. For more on Tree Campus Higher Education, see *Putting Down Roots* in the April 2021 issue of *Missouri Conservationist*.



Top: City of Springfield / Missouri Community Forestry Council Poster Contest tree planting ceremony for Greenwood Laboratory School at Missouri State University.

Middle: Students enjoy an Arbor Day event in Joplin in 2021.

Bottom: Students participate in an Arbor Day tree planting in 2021 in Ozark.

About Arbor Day

Tree City USA takes its cue from the establishment of Arbor Day 150 years ago. The first Arbor Day in the United States was celebrated in Nebraska on April 10, 1872, as a day set aside to commemorate trees and tree planting. Since then, every state has established an official annual Arbor Day. The national Arbor Day is the last Friday in April – April 22 this year. Missouri established the first Friday in April as its Arbor Day in 1886. Countries all around the planet also celebrate their version of Arbor Day.

As one might expect from a holiday with so many varying dates, the types of celebrations also vary, said MDC Community Forestry Coordinator Russell Hinnah.

"Throughout the state, you see a whole gamut of different Arbor Day celebrations, usually involves some tree planting," Hinnah said. "Sometimes it's one tree, sometimes it's multiple trees. They try to get information out to their citizens to come, and usually they meet at a park and have a ceremony. Sometimes they plant a memorial tree."

In addition to putting trees in the ground, Arbor Day celebrations also include putting ideas in the heads of children, said Brunswick Tree Board Secretary Mary Riddle.

"The main thing within our Arbor Day celebration is every year we plant a tree in honor of the kindergarten class for that year," Riddle said. "In the 20 years that I've been involved, we've planted lots of kindergarten trees."

"Our main thing is to teach the children the importance of trees and the responsibility of taking care of them and how to take care of them, so education is really our goal."

In the urban area served by Beyond Housing Forester Doug Seely, the focus is on junior high school students, many of whom are just starting to consider careers.

"We invite 7th and 8th graders from the Normandy Schools Collaborative to join us at the local county park, which is St. Vincent Park," Seely said. "And we have a contractor that gets them to climb up into the canopy of the trees so they can experience that for themselves."

The celebration Seely coordinates also includes tree plantings, the removal of invasive plant species, and discussions on forestry as a career path.

More on Arbor Day is available online at the Arbor Day Foundation website: arborday.org.



Parr Hill Park, Joplin, hosts tree planting events following the tornado that hit the area in 2011.

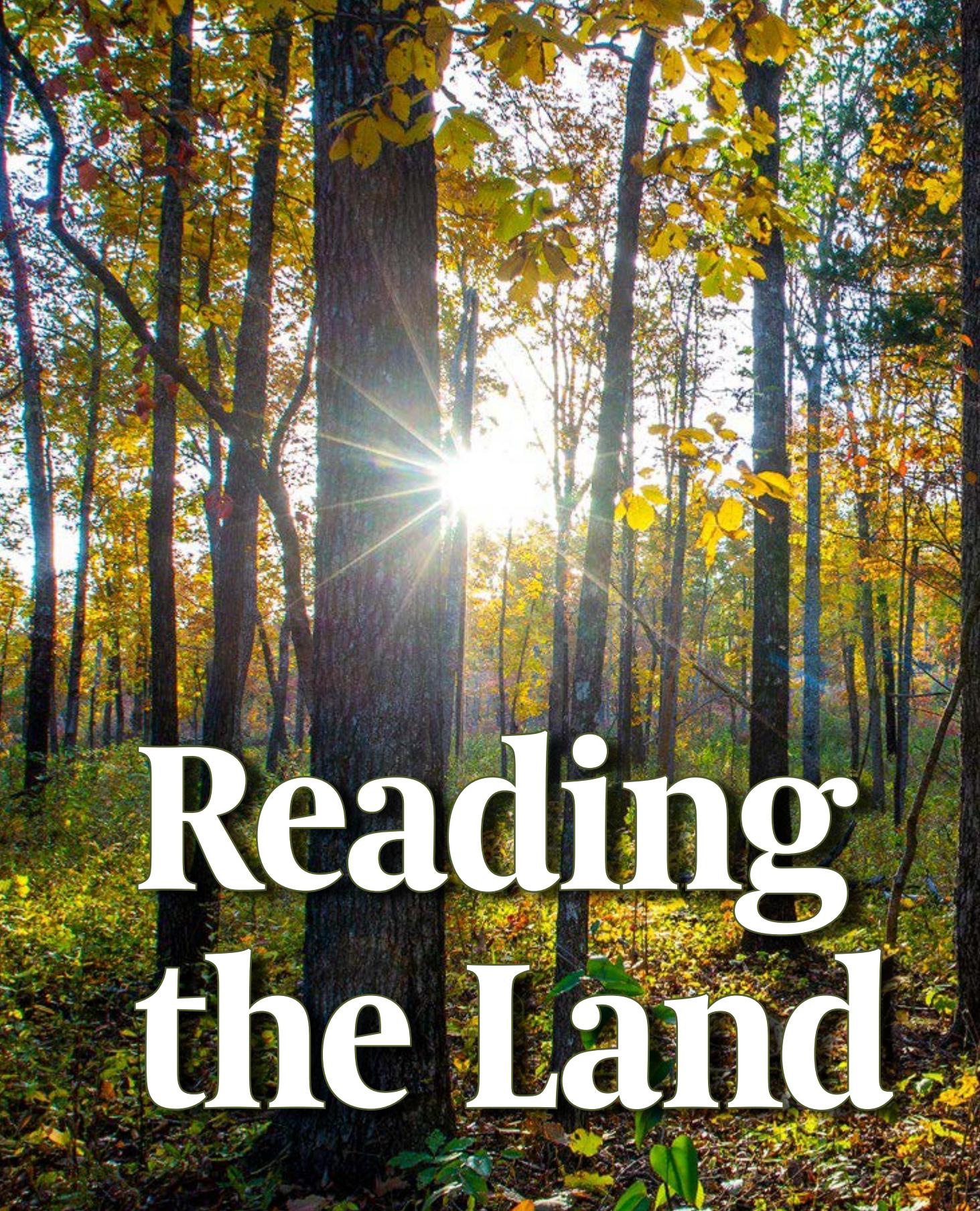
To learn more about benefits of trees visit treeswork.org.

Unrecognized Benefits

Many of the benefits of trees — and of being part of a program such as Tree City USA that promotes a healthy tree canopy — are obvious and measurable. Shaded homes use less energy to stay cool in the summer. Rainfall absorbed by root systems and tree canopy put less stress on stormwater systems. Some are harder to measure, but equally important, Seely said.

"A lot of the benefits that we gain from having tree canopy go unrecognized because it's more subconscious," he said. "So just by having shade and the color green — that can be relaxing to everybody and reduce stress, whether they think they dislike trees or love the heck out of them. So those are some of the qualities that we're trying to open up to residents so they can understand that trees have more of a positive impact on their lives than what they think." ▲

Jon Skinner is a community forester with MDC's Southwest Regional Resource Management Team. Larry Archer is an associate editor with MDC's Communications Branch.



Reading the Land



PHOTOGRAPH BY DAVID STONNER

CLUES FROM THE PAST HELP MANAGE PROPERTY FOR THE FUTURE

by Scott Sudkamp

It was one of those beautiful autumn days as I walked through a patch of western Missouri timber. Skies were a brilliant blue and a gentle breeze caused the treetops to sway rhythmically as I took in my surroundings. The stand of timber consisted mostly of young post oaks interspersed with hickories and a few red oaks. Growing conditions had caused most of these trees to grow tall and straight, with few lateral branches, as each stretched skyward in a race to capture the most sunlight. Dry leaves crunched underfoot, but now and then, in patches where the litter was sparse, native legumes such as desmodium and hog peanut grew in abundance. Up ahead, I noticed a different shape in the canopy. As I drew closer, I could see it was a tree quite unlike most of the others in the woods. The trunk diameter was much larger than the other trees I had been seeing, but also notable was the protrusion of numerous, wide-spreading side limbs that gave the crown a domed appearance unlike that of most of its younger neighbors.

Based on the information in the preceding description, can you deduce anything about the history of this land? For those with a trained eye, modern clues can tell us a lot about the history of the land in terms of the natural communities that once thrived there, but perhaps no longer do.

Plants, Soils, and Site

Whether your interests lie in the aesthetics and satisfaction of a restored native community, enhancing habitat to improve hunting on your farm, or someplace in between, it's important to understand the factors that affect plant community dynamics. Failure to consider these factors can result in wasted time and effort in instances where the land's capability doesn't match the desired management result. In short, it's always much easier to work with nature than against it, and an ability to read the land will facilitate a more efficient use of resources and likely, a more satisfactory outcome.

In much of Missouri, the vegetative communities we see today are considerably different than those enjoyed by the Osage and other native peoples prior to European contact. As our state and nation expanded, immigrants from across the Atlantic introduced agrarian and engineering practices that fundamentally changed the forces that had shaped Missouri's natural communities for millennia. Fire suppression, land clearing, fencing, and market hunting greatly affected terrestrial communities, while these same factors plus channelization and impoundment of rivers altered our state's wetlands. But nature is a resilient and tenacious force. And while many ecosystems are no longer fully functional in their original state, remnants of their past frequently exist in sufficient numbers that if we look with an ecological eye, we can discern what it was in the past, and quite likely, what it still wants to be.

Several factors determine the dominant plant communities that occupy a given area at any given time. Chief among these factors are soils and site. Missouri's soils vary widely in their texture and origins, and subsequently in their fertility and capacity to hold water. Sandy and rocky soils tend to drain quickly, while heavy river bottom clays, with their extremely fine particles, may hold water for weeks or months following a rain. As a result of their propensity to hold or pass water, these diverse soil types host a wide range of plant species and communities



in Missouri, ranging from very dry sites with prickly pear cactus to permanent swamps growing bald cypress.

Likewise, site characteristics can also affect the plants found. Ridgetops, side slopes, and valley bottoms may be within just a few hundred yards of one another, but the plants found on those different slope positions can vary considerably. Another feature with a profound impact on moisture retention and soil heating is aspect. Aspect is the direction a slope faces. While at first this may seem unimportant, it can be a critical driver of plant communities, based on their tolerance of drought and fire. Savvy forest managers know that east and north aspects are cooler and wetter, and usually grow higher quality timber, while the trees on the drier slopes facing south and west tend to be more fire scarred, scattered, and shorter, and often are even different species.

Where to Look for Clues to the Land's Past

We've established that we'll be more effective and efficient at managing the land towards what it wants to be, which in most cases is what it used to be. But how do we do this? Where do we find clues as to the land's past? The following are several likely places that we can look to the land for evidence of its past.



Top: Woodland communities are characterized by fire-tolerant trees with a well developed herbaceous understory.

Right: When tree removal results in a profusion of native grasses and wildflowers, land managers should suspect that the site was once woodland, prairie, or savanna.



Roadsides and Utility Easements

Southern Missouri's Ozarks are certainly a national treasure and it's no secret that they represent the greatest volume of timber in the state. But what many folks don't realize is that the forests we see today are, in most cases, not what those same landscapes looked like 200 years ago. Plenty of historical accounts suggest that at the time of European settlement, this region was not densely wooded with a thick carpet of fallen leaves and no understory, but rather often consisted of more widely spaced trees with an herbaceous understory. In fact, these landscapes were often open enough to drive a team and wagon for many miles, a feat that would be mostly impossible today.

On your next walk or drive through the Ozarks, look carefully at the vegetation growing along the edges of the road or in other areas where the trees are kept at bay. What you'll regularly see is that in these areas that receive more sunlight, native grasses such as big and little bluestem often thrive, along with forbs such as coneflowers, prairie dock, milkweed, asters, and blazing stars. That these plants grow in such places is no accident, rather, they represent what was once a vast woodland community characterized by an herbaceous understory

stretching out beneath a canopy of fire tolerant trees such as post oak and shortleaf pine.

Additional clues to a wooded area's past can be found by closely studying the plants that occur in the understory. Native legumes tend not only to tolerate fire but thrive with it. If you're finding plants such as goat's rue, wild peas, leadplant, hog peanut, native lespedezas, and desmodium, then you've found what biologists and foresters call indicator plants. These floras are sure indicators of a past that included fire and most likely grazing, and a forest structure that was likely different from what we see today.

But if your botanical skills are lacking, don't fret. Simply pay attention to the time of year that most of the herbaceous plants bloom. In a true forest ecotype, most herbaceous understory plants bloom in the early spring, prior to leaf emergence on the trees. These spring ephemerals have adapted over time to reproduce early, while they can capture sunlight, because by late spring there is too much shade to afford good growing conditions. Conversely, woodlands have a more open canopy that allows more sunlight to reach the ground. As a result, the suite of herbaceous plants has a much longer growing season, and will bloom throughout the late spring, summer, and fall.



Low Spots and Wet Areas

Whether it's a perpetually wet spot in a field that makes it difficult to grow crops, or that patch of willows or prairie cordgrass growing in the pasture, when we know what to look for, we can often find clues to what will grow best. The presence of wet-tolerant plants such as smartweed, spikerush, arrowhead, bulrushes, willows, silver maple, green ash, and buttonbush strongly suggests that an area is best suited for wetland plants. Often, satellite imagery such as Google Earth can be used to identify the locations of wet areas. Dark spots in a springtime crop field, or green areas in an otherwise dry summertime pasture suggest the presence of excess moisture. In many cases, these areas have very tight clay soils that don't permit much water percolation. Planting these areas with species adapted to dry or mesic conditions is likely to fail, as those species are unlikely to tolerate the wetness. Instead, identify these areas, verify that they are excessively wet, and then use plants that are adapted to handle those conditions.

Railroad Rights of Way

Many railroad beds in Missouri are well over 100 years old. In most cases, these rights of way were built through plant communities that still represented the same ones that existed at the time of European settlement. Because the right of way was often protected from excessive grazing or plowing, in many cases these areas today represent the plant communities that existed in the past. As an example, many rights of way contain prairie remnants. These plants offer insight into what used to grow there, and the types of plants that soils in that area can support.

Top Left: Prairies have few trees and developed under fire and grazing.

Top Right: North and east aspects have more shade and moisture than slopes facing south and west.

Bottom Left: Wildflowers such as these pale purple coneflowers can often suggest clues as to a site's history.

Bottom Right: Many of Missouri's tree species can tolerate low intensity fires. Old, fire-scarred trees provide insight to how fire, forests, climate, and humans have interacted over time.

Tree Stumps

The cross sections of tree stumps can also offer insights into an area's past fire history. Specifically, we need to look at the stumps of large diameter trees, as these were old enough to have had an extensive fire history. Fires often scar a tree when the heat kills a portion of the trunk as the flames move past. By learning to identify fire scars, habitat managers can make educated guesses as to the fire history of a site and the natural communities that may have historically occurred on their land.

Woodlands and Savannas

While forests and prairies are easy to conjure up in your mind, for many people a mental picture of a woodland or savanna may be considerably more elusive. These communities consist of both trees and herbaceous plants and were historically maintained by fire and grazing. In these communities, the trees are usually fire tolerant oaks, while the understory consists of many species of native grasses, forbs, and legumes. Because the trees are more widely spaced, they typically will develop a wider crown. Historically, a great deal of the southern Missouri Ozarks consisted of much more open woodland landscapes than we find today. Historic accounts often describe woods open enough to drive a team and wagon for many miles. Species typical of woodlands and savannas include post oak, bur oak, blackjack oak, shortleaf pine, big bluestem, purple coneflower, goat's rue, desmodium, native lespedezas, and little bluestem.

- Typical tree species: post oak, bur oak, blackjack oak
- Scattered shade/sun
- Understory: summer and fall flowers, native legumes
- Frequent fires
- Tree growth: shorter, wide crowned trees; many lateral limbs
- Covered much of the Ozarks historically

Forests

- Typical species: red oak, white oak
- Deep shade
- Understory: spring ephemerals
- Less frequent fires
- Tree growth: tall, straight boles, few lateral limbs

Prairies

- Typical species: big bluestem, little bluestem, Indian grass, native sunflowers, blazing star
- Full sun
- Warm season grasses and forbs
- Frequent fires
- Few trees
- Mostly converted to crops & pasture

Glades

- Typical species: little bluestem, prickly pear, yellow coneflower, evening primrose
- South/west aspects
- Shallow soils
- Stunted trees, if any
- Native grasses and forbs

Some Terrestrial Natural Communities and Clues to Identify Them

	Woodlands & Savannas	Forest	Prairie	Glade
Typical Tree Species	Post Oak, Bur Oak, White Oak, Chinkapin Oak, Shortleaf Pine	Red Oak, White Oak, Hickories, Ash, Basswood	Few, if any trees; Shrubs include Pasture Rose, New Jersey Tea, Smooth Sumac	Chinkapin Oak, Red Cedar, Blackjack Oak, Post Oak
% Tree Canopy Closure	20-80%	90+%	<10%	10-30%
Typical Understory/ Ground Cover Species	Little Bluestem, River Oats, Hog Peanut, Asters, Bristly Sunflower, Fragrant Sumac, Lowbush Blueberry	Trilliums, Jack in the Pulpit, Trout lily, Ferns, Paw Paw	Big Bluestem, Little Bluestem, Indiangrass, sunflowers, milkweeds, indigos, blazing stars	Little Bluestem, Side Oats Grama, Evening Primrose, Wild Petunia, Prickly Pear
Relative Historic Fire Frequency	Moderate	Low	High	Moderate-High
Tree Growth Characteristics	Spreading crowns, many side limbs, most trees <75' tall	Narrow crowns & straight, clean trunks; Many trees >75' tall	Of the few present, wide spreading crowns with numerous side branches; <75' tall	Trees usually stunted, gnarled & twisted growth forms, spreading crowns, <50' tall

Pulling It All Together

Missourians are blessed to live in a very beautiful and highly diverse state, and many residents hold nature near and dear and wish to promote and protect our natural resources. The Missouri Department of Conservation even has an entire branch of well-trained and highly competent staff dedicated to helping landowners best manage the resources on their lands, by providing both technical expertise and financial assistance. An ability to read the land will help habitat managers better understand the propensity or limitations of a particular area to achieve desired goals. By understanding and working with nature, we can be more efficient and effective with the practices we employ and funds we expend, and ultimately, we'll see better success. Nature has a story to tell us. When we learn to listen to her stories, we unlock the secrets to success in our endeavors. ▲

Scott Sudkamp spent 19 years as a wildlife biologist in Missouri and Texas. He currently works as a land agent for Midwest Land Group, where he uses his biological background to help clients better understand the land's capabilities and develop its potential. He's a self-described nature nerd and enjoys hunting, fishing, floating, and managing habitats.

Get Outside in APRIL

→ Ways to connect
with nature



Dogwood



Redbud

Native Landscaping

Add natives to your landscape this year. If you're looking for a native shrub, ninebark is a great choice! Its attractive, dense clusters of white flowers, which bloom from April to June, are a good nectar source for bees, butterflies, and even beetles. Several birds eat the seeds. And the cover of shrubs is appreciated by all small animals seeking shelter from predators.

Natural Events to See This Month

Here's what's going on in the natural world.



Eastern collared lizards are active from April to September or October.



Most bats are forming their summer nursery colonies. Do not disturb them.



Mother crayfish carry eggs under their tails.

Tune into Frogs

Listen closely and see if you can pick out Missouri's frogs as they emerge with their distinctive serenades. To help you get in tune with some of the state's frogs, here's a list and their corresponding sounds. Can you tell the difference?

Blanchard's cricket frogs breed from late April through mid-July. Their call is a metallic *gick, gick, gick*.

Gray treefrogs breed from early April to early July. Their call is a musical birdlike trill.

Spring peepers breed in late February to mid-May. Their call is a high-pitched, peeping call, repeated about once a second.

Boreal chorus frogs have their peak of breeding activity during April. Their call is a rasping, vibrating *prreeep* that sounds similar to running a fingernail over the teeth of a pocket comb.

Northern crawfish frogs breed from late February through April. The male's call is a deep, loud, snoring *gwaaaa*. A group of calling males sounds like pigs at feeding time.

Southern leopard frogs breed mid-March through mid-October. The male's call is a series of abrupt, chucklelike quacking sounds, repeated at a rate of 12 pulses per second.

Plains leopard frogs breed mid-April to early June. The male's call at sunset is a rapid series of guttural chuck-chuck-chuck sounds, with a pulse rate of 3 per second.

Green frogs breed from late April to mid-August. The male's call is an explosive bong that sounds like a loose banjo string.

Pickerel frogs breed from March through May. Their call is a low-pitched, descending snore lasting for several seconds.



Morel Mania

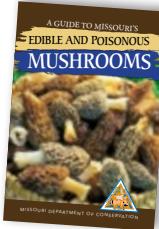
It's that time of year when folks take to the woods in search of morel mushrooms. Most people think of morels when they hear the words "wild mushrooms." Morels' short season, good camouflage, and delectability leads some to keep "their" morel spots a secret for generations. Morels are treasured for their delicious flavor and the fun of the hunt, often a family tradition. Did you know there are three varieties of edible morels?

Yellow morels appear in April and early May. They can sometimes get huge, up to a foot high and 6 inches thick. They are choice edible mushrooms.

Black morels appear in April and early May. They usually only reach a few inches high. Some observers have noted they often come out a little earlier than the yellow morels.

Half-free morels appear in April. They occur scattered in mixed woods, and they usually pop up before the other morels.

For more information about Missouri mushrooms, visit *A Guide to Missouri's Edible and Poisonous Mushrooms* at short.mdc.mo.gov/ZNf.



VIRTUAL

Native Plants and Wildflowers Presentations by Scott Woodbury

Saturday, April 9

Native Plants: 11 a.m.–noon • Wildflowers: 1–2 p.m.

Location: online

Registration required by April 9. Call 888-283-0364 or email short.mdc.mo.gov/44B.

Are you interested in making some changes to your garden to add more natives? These workshops are a great place to start, with information for beginning gardeners or native plant-curious homeowners. Register for each virtual presentation of Shaw Nature Reserve horticulturist Scott Woodbury.

KEEP WILD ANIMALS WILD



City or countryside, Missouri's wild animals are your neighbors, and finding a young animal alone doesn't mean it needs help. In spring and early summer, rabbits and other wild animals are sometimes left alone for long periods while their parents look for food. If you see young wildlife in the outdoors, don't assume it is abandoned or hurt.

LEAVE YOUNG WILDLIFE ALONE.



If you believe an animal is in distress, notify the closest Missouri Department of Conservation office.

MISSOURICONSERVATION.ORG

Places to Go

SOUTHEAST REGION

Donaldson Point Conservation Area

A geographic anomaly – with birds

by Larry Archer

Like the rural general store in the movie *O Brother, Where Art Thou?*, Donaldson Point Conservation Area (CA) is something of a “geographic anomaly.” But instead of being “two weeks from everywhere,” visitors to Donaldson Point CA can watch the sun both rise and set over Kentucky while remaining firmly in Missouri’s Bootheel.

Nestled on 5,945 acres in a Mississippi River bend southeast of New Madrid, Donaldson Point CA is bounded by the river — and Kentucky — to both the east and west. Across the river to the south is Tennessee.

Geographic trivia aside, Donaldson Point CA’s composition and location within the Mississippi Flyway makes it a destination for birds and birders, said Donaldson Point CA Manager Tim Kavan.

“It’s a host for all the Neotropical migratory birds that come through because it’s a 5,000–5,600-acre patch of oaks and hickories in that floodplain,” Kavan said. “It’s a great stopping ground. You’re liable to find anything — Mississippi Kites, Blackburnian and bay-breasted warblers, Swainson’s warblers, and swamp rabbits — making homes because of the giant cane stands that are down there.”

Because it’s located in a river bend, the area is also prone to flooding, so check the conditions before visiting, Kavan suggested.



“My recommendation would be to follow the river gauges. We go by the New Madrid flood gauge, and at 34 feet on the Mississippi River, that area is shut down for all public use, because at 34 feet roughly 60 percent of the entire area is completely inundated with water.”

—Donaldson Point CA Manager Tim Kavan



DONALDSON POINT CONSERVATION AREA

consists of 5,945 acres in New Madrid County. From New Madrid, take Route WW east, then Route AB south, and County Road 405 to the area.

36.5549, -89.4181

short.mdc.mo.gov/4ZF 573-290-5730

WHAT TO DO WHEN YOU VISIT



Birdwatching Included in the National Audubon Society's Southeast Missouri Bottomlands Important Bird Area (short.mdc.mo.gov/4Zv). The eBird list of birds recorded at Donaldson Point CA is available at short.mdc.mo.gov/4Zt.



Camping Designated camping sites; Open camping — walk-in/float-in/backpack.



Fishing Black bass, catfish, crappie, sunfish, white bass



Field Trials Special-use permit required.



Trails Approximately 5.25 miles of interior gravel roads and 10 miles of interior dirt service roads.



Hunting Deer and **turkey**

Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw for regulations.

Also **rabbit**, and **squirrel**

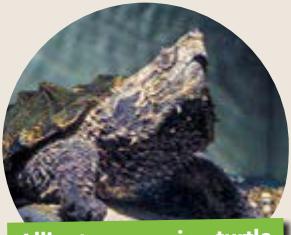


Trapping Special-use permit required.



Waterfowl Hunting Open hunting.

WHAT TO LOOK FOR WHEN YOU VISIT



Alligator snapping turtle



Prothonotary warbler



Bobcat



Bald eagle

Wild Guide



Polyphemus Moth

Antheraea polyphemus

Status

Multibrooded resident; populations declining

Size

Wingspan: 3½–5½ inches

Distribution

Statewide



Did You Know?

The polyphemus is named after the giant one-eyed monster (cyclops) of Homer's *Odyssey*, for the big eyespot on each hindwing.

Large, butterflylike polyphemus moths vary in color — some are brown or tan while others are bright reddish brown. All have a small eyespot in the center of the forewing, and a very large eyespot in the middle of the hindwing. Males have smaller bodies than females, and their plumelike antennae are larger than those of females. Polyphemus moths can be abundant in and near forests, parks and suburban areas, orchards, and wetlands. Adults are frequently attracted to lights at night.



LIFE CYCLE

Adults are nocturnal, flying between 11 p.m. and 1 a.m. from mid-April through August seeking mates. Cocoons are oval, usually wrapped in a leaf of the food plant, with a tough outer layer of silk. They usually fall to the ground in autumn when the food plant drops its leaves. Sometimes they are attached to stems and persist through the winter.



FOODS

Larvae feed on more than 20 species of trees and shrubs in Missouri. Among their favorites are silver maple, birch, hazelnut, and oak. Adults do not eat at all and only survive a few weeks at most.



ECOSYSTEM CONNECTIONS

The caterpillars are herbivores that graze on vegetation, while adults serve a role in pollination. All stages provide food for predators. Caterpillars of many moths can be parasitized by wasps, which lay eggs directly on the caterpillars, eventually killing them.

Outdoor Calendar

MISSOURI DEPARTMENT OF CONSERVATION

FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Release:
March 1–May 27, 2022
- ▶ Catch-and-Keep:
May 28, 2022–Feb. 28, 2023

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Nongame Fish Gigging

Impounded Waters, sunrise to sunset:
Feb. 16–Sept. 14, 2022

Paddlefish

Statewide:
March 15–April 30, 2022

On the Mississippi River:

March 15–May 15, 2022
Sept. 15–Dec. 15, 2022

Trout Parks

State trout parks are open seven days a week
March 1 through Oct. 31.

Catch-and-Keep:
March 1–Oct. 31, 2022

Spring Turkey Season

Spring turkey hunting youth weekend is April 9 and 10, with the regular spring season running April 18 through May 8. Find detailed information in the 2022 *Spring Turkey Hunting Regulations and Information* booklet, available where permits are sold and online at short.mdc.mo.gov/ZZf.



For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.



Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.

HUNTING

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crow

Nov. 1, 2022–March 3, 2023

Deer

Archery:
Sept. 15–Nov. 11, 2022
Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Early Youth Portion (ages 6–15):
Oct. 29–30, 2022
- ▶ November Portion:
Nov. 12–22, 2022
- ▶ Late Youth Portion (ages 6–15):
Nov. 25–27, 2022
- ▶ Antlerless Portion (open areas only):
Dec. 3–11, 2022
- ▶ Alternative Methods Portion:
Dec. 24, 2022–Jan. 3, 2023

Groundhog (woodchuck)

May 9–Dec. 15, 2022

Pheasant

Youth (ages 6–15):
Oct. 29–30, 2022

Regular:
Nov. 1, 2022–Jan. 15, 2023

Quail

Youth (ages 6–15):
Oct. 29–30, 2022

Regular:
Nov. 1, 2022–Jan. 15, 2023

Rabbit

Oct. 1, 2022–Feb. 15, 2023

Squirrel

May 28, 2022–Feb. 15, 2023

Turkey

Archery:
Sept. 15–Nov. 11, 2022
Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Youth (ages 6–15): April 9–10, 2022
- ▶ Spring: April 18–May 8, 2022
- ▶ Fall: Oct. 1–31, 2022

Waterfowl

See the Migratory Bird and Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.





**Follow us
on Instagram**

@moconservation

This eastern tiger swallowtail knows April is a great time to discover Missouri's flowering trees and native wildflowers. Why not get outside and discover some for yourself? If you need help identifying your blooms, check out MDC's online *Field Guide* at mdc.mo.gov/field-guide.

 by **Noppadol Paothong**

Subscribe online | mdc.mo.gov/conmag | Free to Missouri households